

5  
628.16 Poplar River  
M26prus Cooperative  
Monitoring  
1986 Arrangement ...  
2nd qtr. data exchange,  
United States  
contribution

# POPLAR RIVER COOPERATIVE MONITORING

## ARRANGEMENT

STATE DOCUMENTS COLLECTION

MAR 12 1990

### 1986

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## SECOND QUARTER DATA EXCHANGE

## UNITED STATES CONTRIBUTION

# PLEASE RETURN

August 1986

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## INTRODUCTION

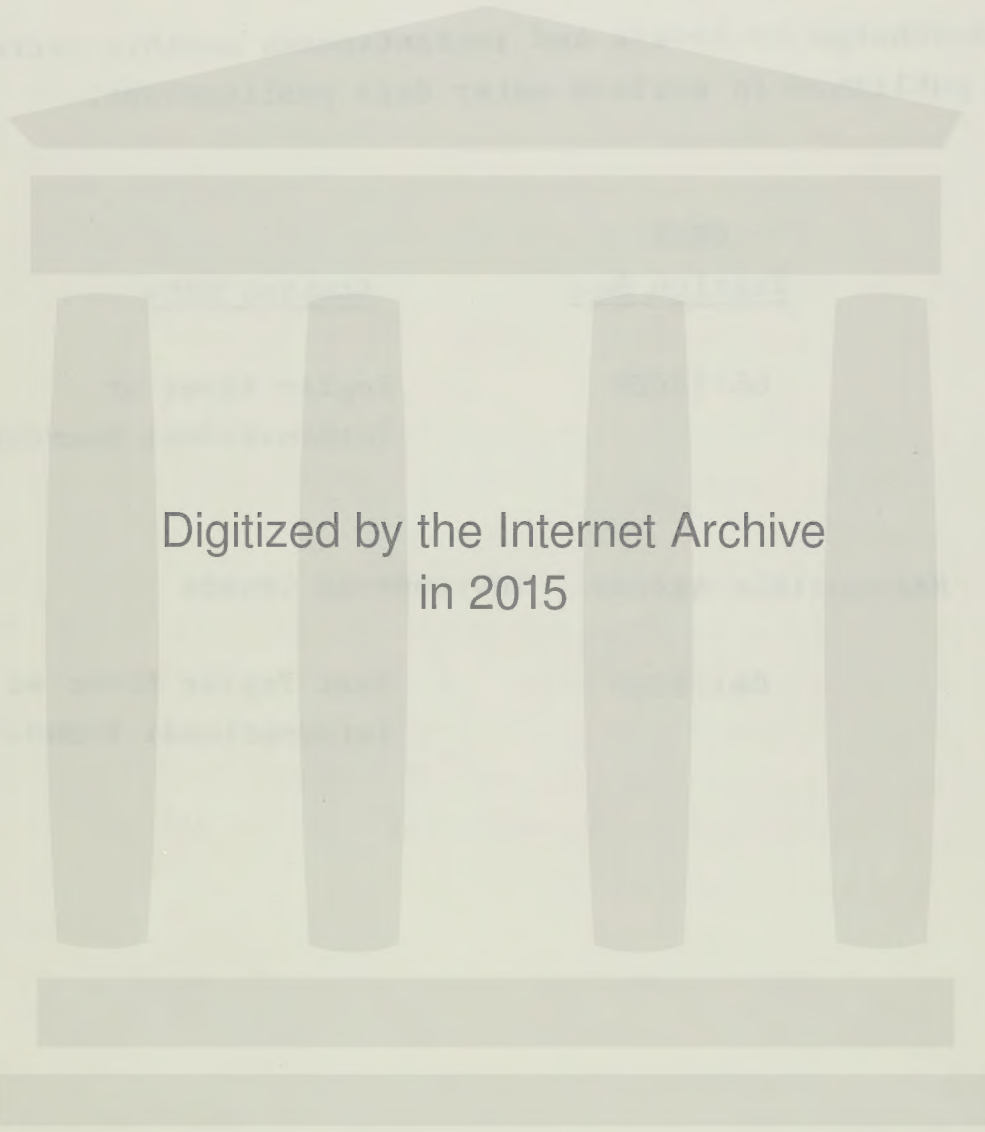
### 1986 - SECOND QUARTER DATA EXCHANGE POPLAR RIVER BASIN

The Poplar River Bilateral Monitoring Committee was authorized by the Governments of Canada and the United States under the Poplar River Cooperative Monitoring Arrangement dated September 23, 1980. The Committee is composed of representatives of the Governments of the United States, State of Montana, Canada, and Province of Saskatchewan. In addition to the representatives of governments, two ex officio members who are local representative of the State of Montana and Province of Saskatchewan participate in activities of the Committee.

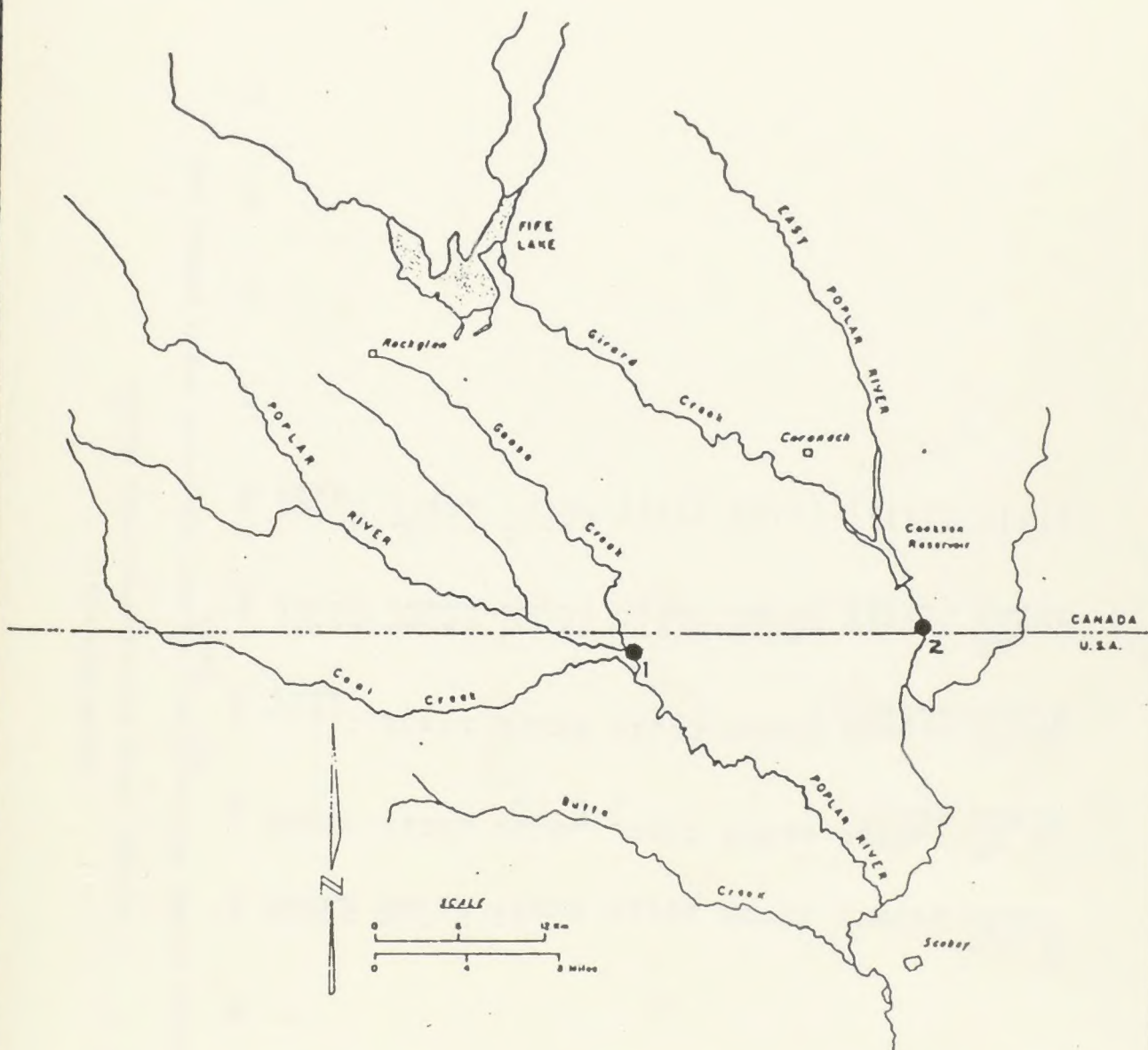
One responsibility of the Committee includes the on-going quarterly exchange of results of water quantity, water quality and air quality monitoring programs. The programs are being conducted in Canada and the United States at or near the International Boundary by cooperative monitoring agencies in accordance with the Technical Monitoring Schedules. Monitoring information is to be transmitted by each Committee co-chairman to his counterpart co-chairman within a reasonable period after the termination of each quarter. In addition, pre selected parties are to receive copies of the quarterly exchange.

This package represents information collected by United States sources for the Poplar River basin during the second quarter of 1986. Included are data for surface water quantity and quality, ground water levels. Air quality monitoring was not done during the reporting period.





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HYDROMETRIC GAUGING STATIONS



POPLAR RIVER BASIN

06178500 EAST POPLAR RIVER AT INTERNATIONAL BOUNDARY

DISCHARGE IN CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY 1986 TO DECEMBER 1986  
MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	2.8	2.9	174	7.6	7.9	5.5	3.2					
2	2.9	2.9	234	14	7.0	4.1	2.9					
3	2.9	2.9	230	8.5	7.2	3.9	2.9					
4	2.9	3.0	231	5.8	7.7	3.7	3.1					
5	2.7	2.9	219	5.4	28	3.1	5.3					
6	2.8	2.9	202	7.0	18	2.9	4.9					
7	2.8	2.8	155	7.2	7.9	3.1	3.9					
8	2.8	2.6	75	5.5	7.5	3.1	3.4					
9	2.9	2.7	71	4.5	13	4.1	---					
10	2.9	2.6	70	4.3	11	4.5	---					
11	3.1	2.4	73	13	8.8	3.7	---					
12	3.0	2.2	70	5.1	18	5.7	---					
13	3.0	2.4	66	5.7	12	4.9	---					
14	3.0	2.2	63	13	13	3.7	---					
15	3.0	2.7	60	5.9	14	3.3	---					
16												
17	3.0	2.6	58	4.6	22	2.6	---					
18	3.0	2.7	52	4.9	8.8	2.6	---					
19	3.0	2.6	56	8.3	8.2	2.7	---					
20	3.1	2.5	44	11	7.7	4.2	---					
21			39	6.5	7.2	4.0	---					
22	2.9	2.4	36	4.7	6.9	3.5	---					
23	2.9	2.7	43	4.1	8.3	3.2	---					
24	2.9	2.8	26	8.7	10	3.0	---					
25	2.9	2.9	24	6.2	8.6	2.8	---					
26		3.7	39	4.5	7.5	2.7	---					
27	2.9	4.5	17	4.2	7.0	2.8	---					
28	2.8	19	16	4.0	6.8	2.7	---					
29	2.9	23	15	4.0	6.9	2.6	---					
30	2.8	---	24	4.7	6.8	2.8	---					
31	2.9	---	14	9.6	6.8	3.1	---					
		---	18	---	7.7	---	---					
TOTAL	90.4	160.6	2514	203.5	318.2	104.6	---					
MEAN	2.92	5.174	81.1	6.78	10.3	3.49	---					
MAX	3.1	46	234	14	28	5.7	---					
MIN	2.7	2.2	14	4.0	6.8	2.6	---					
AC-FT	179	319	4990	404	631	207	---					





# SURFACE WATER QUALITY MONITORING

## Station Location

Responsible Agency: U.S. Geological Survey

No. on Map	USGS Station No.	Station Name
1	06178000	Poplar River at International Boundary
2	06178500	East Poplar River at International Boundary
3	06179000	East Poplar River near Scobey

## PARAMETERS

### WATSTORE\*

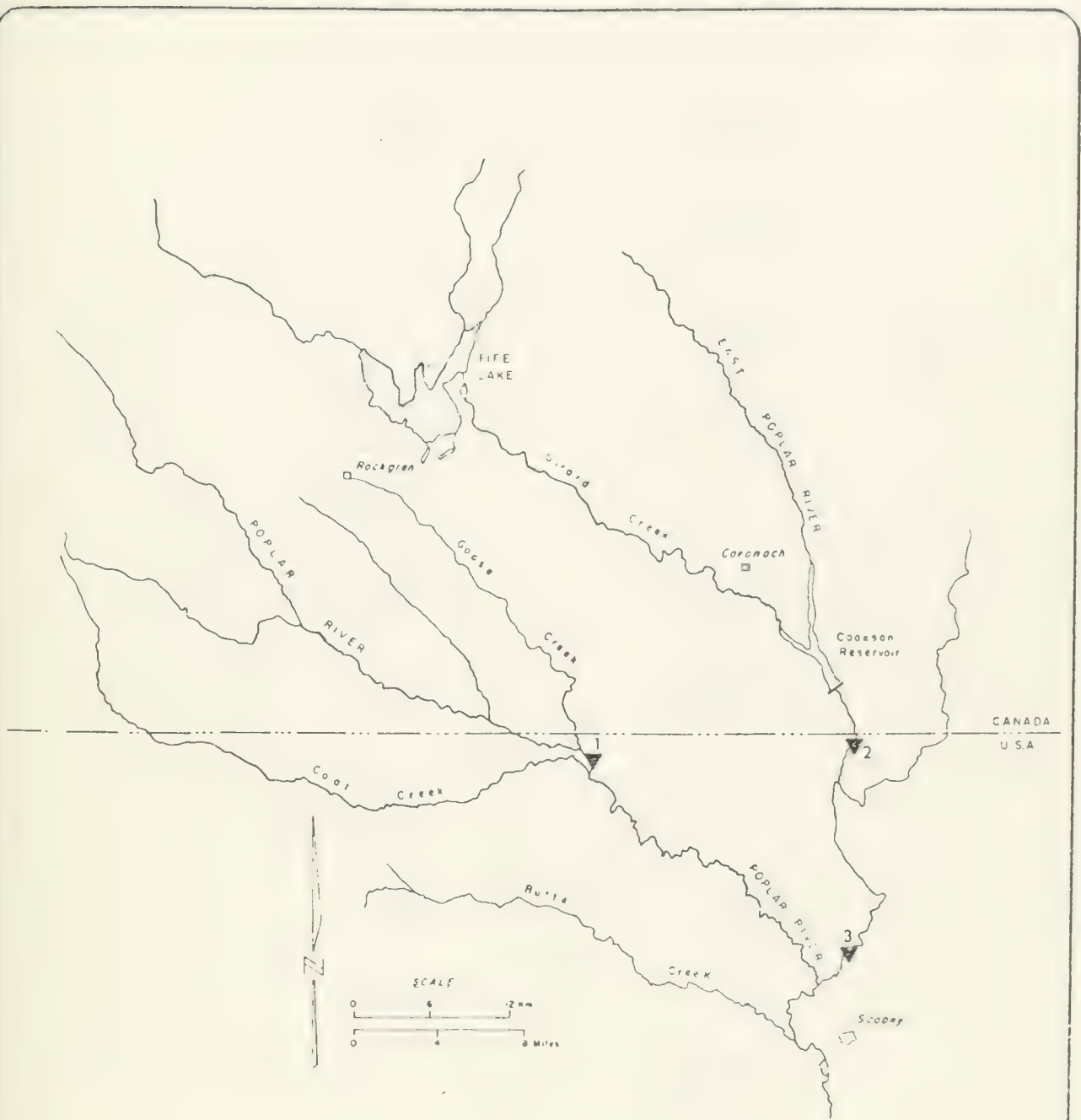
### Sampling Frequency

Code	Parameter	Analytical method	No.	1	2	3
00410	Alkalinity-field	Elect. Titration	M	M	M	
90410	Alkalinity-lab	Elect. Titration	M	M	M	
01106	Aluminum-diss	AA	SA	SA	SA	
00610	Ammonia-tot	Colorimetric	M	M	M	
00625	Ammonia+Org N-tot	Colorimetric	M	M	M	
01000	Arsenic-diss	AA, hydride	SA	SA	SA	
01002	Arsenic-tot	AA, hydride	A	A	A	
01010	Beryllium-diss	AA	SA	SA	SA	
01012	Beryllium-tot/rec	AA-persulfate	A	A	A	
01020	Boron-diss	Colorimetric	M	M	M	
01025	Cadmium-diss	AA	SA	SA	SA	
01027	Cadmium-tot/rec	AA-persulfate	A	A	A	
00913	Calcium	AA	M	M	M	
00680	Carbon-tot Org	Wet Oxidation	SA	SA	SA	
00940	Chloride-diss	Ion chromatography	M	M	M	
01030	Chromium-diss	AA	SA	SA	SA	
01034	Chromium-tot/rec	AA-persulfate	A	A	A	
00080	Color	Electrometric, visual	M	M	M	
00095	Conductivity	Wheatstone Bridge	M	D	M	
01040	Copper-diss	AA	SA	SA	SA	
01042	Copper-tot/rec	AA-persulfate	A	A	A	
00061	Discharge-inat	Direct measur.	M	M	M	
00950	Fluoride	Electrometric	M	M	M	
01046	Iron-diss	AA	M	M	M	
01045	Iron-tot/rec	AA-persulfate	A	A	A	
01049	Lead-diss	AA	SA	SA	SA	
01051	Lead-tot/rec	AA-persulfate	A	A	A	
00925	Magnesium-diss	AA	M	M	M	
01056	Manganese-diss	AA	SA	SA	SA	
01055	Manganese-tot/rec	AA-persulfate	A	A	A	
01065	Nickel-diss	AA	SA	SA	SA	
01067	Nickel tot/rec	AA-persulfate	A	A	A	
00613	Nitrite-tot	Ion-chromatography	M	M	M	
00630	Nitrate+Nitrite-tot	Colorimetric	M	M	M	
00300	Oxygen-diss	Winkler/meter	M	M	M	
70507	Phos, Ortho-tot	Colorimetric	M	M	M	
00400	pH	Electrometric	M	M	M	
00665	Phosphorous-tot	Colorimetric	M	M	M	
00935	Potassium-diss	AA	M	M	M	
00931	SAR	Calculated	M	M	M	
80134	Sediment-conc.	Filtration-gravimetric	M	M	M	
80155	Sediment-load	Calculated	M	M	M	
01145	Selenium-diss	AA, hydride	SA	SA	SA	
01147	Selenium tot/rec	AA, hydride	A	A	A	
00953	Silica	Colorimetric	M	M	M	
00930	Sodium	AA	M	M	M	
00945	Sulfate-diss	Colorimetric	M	M	M	
70301	Total Dissolved Solids	Calculated	M	M	M	
00010	Temp Water	Toluene	M	M	M	
00020	Temp Air	Toluene	M	M	M	
00076	Turbidity	Nephelometric	M	M	M	
80020	Uranium-diss	Fluorimetric	-	MC	-	
01090	Zinc-diss	AA	SA	SA	SA	
01092	Zinc-tot/rec	AA-persulfate	A	A	A	

\*Computer storage and retrieval system - USGS

Symbols: C-continuous; D-daily; M-monthly; MC-monthly composite; A-annually at high flow; SA=semi-annually at low and high flow; AA-atomic absorption; tot-total; rec-recoverable; diss-dissolved





SURFACE WATER QUALITY MONITORING STATIONS





C5178000 - POPLAR RIVER AT INTERNATIONAL BOUNDARY

WATER QUALITY DATA

DATE	TIME	TEMPERATURE (DEG C)		WIND SPEED (MILES PER HOUR)	WEATHER (WMO CODE NUMBER)	STREAM FLOW, INSTANTANEOUS (CFS)	TURBIDITY (NTU)	COLOR (PLATINUM COBALT UNITS)	SPECIAL CONDUCTANCE (US/CM)	DISSOLVED OXYGEN, (MG/L)
		(00010)	(00020)	(00030)	(00040)	(00060)	(00070)	(00080)	(00090)	(00300)
MAR 1986										
25...	11:30	4.5	2.0	520	1	26	1.5	60	738	8.0
APR 1986										
16...	13:00	5.0	2.0	57.0	3	9.9	3.1	30	1030	12.2
MAY 1986										
15...	12:00	11.0	2.0	525	3	34	4.2	60	1080	7.8
JUN 1986										
13...	10:30	22.0	25.0	0	0	2.0	2.2	45	1150	7.7
JUL 1986										
15...	16:30	26.5	29.0	0	0	1.0	--	--	1220	12.2
DATE	TIME	PH		NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, NITRATE TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)	HARDNESS (MG/L AS CaCO3)
		(STANDARD UNITS)	(STANDARD UNITS)	(00610)	(00615)	(00625)	(00630)	(00665)	(00680)	(00900)
MAR 1986										
25...		8.5	8.3	0.02	<0.01	0.5	<0.10	0.05	9.5	240
APR 1986										
16...		8.2	8.4	0.05	<0.01	0.5	<0.10	0.04	--	300
MAY 1986										
15...		8.7	8.4	0.19	<0.01	1.3	<0.10	0.06	--	360
JUN 1986										
13...		8.7	8.7	0.93	<0.01	1.0	<0.10	0.04	--	220
JUL 1986										
15...		9.0	--	--	--	--	--	--	--	--



## WATER QUALITY DATA

	IRON,	LEAD,	MANGA-	NICKEL,	ZINC,	ALUM-	SELE-
	DIS-	TOTAL	NESE,	TOTAL	TOTAL	INUM,	NIUM,
	SOLVED	RECOV-	DIS-	RECOV-	RECov-	DIs-	DIs-
	(UG/L)	ERABLE	SOLVED	ERABLE	ERABLE	SOLVED	SOLVED
	(UG/L	(UG/L	(UG/L	(UG/L	(UG/L	(UG/L	(UG/L
	AS PZ)	AS MN)	AS MN)	AS NI)	AS ZN)	AS AL)	AS SE)
DATE	(01046)	(01049)	(01055)	(01065)	(01090)	(01106)	(01145)
MAR 1986							<1
25...	130	1	20	1	5	10	--
APR	--	--	--	--	--	--	--
15...	34	--	--	--	--	--	--
MAY	--	--	--	--	--	--	--
15...	150	--	--	--	--	--	--
JUN	--	--	--	--	--	--	--
18...	32	--	--	--	--	--	--
JUL	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--

[illegible]









## WATER QUALITY DATA

[illegible][illegible]





## WATER QUALITY DATA

[illegible][illegible]



POPLAR RIVER BASIN

06178500 EAST POPLAR RIVER AT INTERNATIONAL BOUNDARY

SPECIFIC CONDUCTANCE (MICROSIEMENS/CM AT 25 DEG. C), CALENDAR YEAR JANUARY 1986 TO DECEMBER 1986  
ONCE-DAILY

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	1390	1290	1170	1150	1280							
2	1320	1340	1230	1170	1250							
3	1360	1360	1200	1240	1290							
4	1380	1370	1220	1190	1300							
5	1400	1380	1180	1200	1280							
6	1340	1400	1160	1250	1330							
7	1380	1390	1160	1330	1390							
8	1340	1450	1160	1300	1340							
9	1410	1400	1150	1250	1360							
10	1400	1500	1160	1290	1480							
11	1380	1520	1150	1320	1390							
12	1390	1480	1150	1230	1450							
13	1430	1480	1150	1180	1400							
14	1450	1480	1150	1260	1330							
15	1440	1500	1140	1220	1260							
16	1450	1470	1140	1210	1200							
17	1440	1460	1140	1230	1180							
18	1450	1460	1140	1350	1210							
19	1440	1470	1140	1440	1270							
20	1440	1490	1140	1210	1270							
21	1440	1470	1140	1230	1290							
22	1490	1470	1130	1220	1300							
23	1490	1480	1130	1290	1270							
24	1490	1460	1150	1400	1280							
25	1490	1440	1150	1250	1260							
26	1480	---	1130	1240	1270							
27	1500	---	1160	1290	1280							
28	1500	---	1170	1360	1280							
29	1480	---	1160	1440	1280							
30	1480	---	1130	1400	1280							
31	1500	---	1190	---	1280							
TOTAL	44370	---	35870	38140	40330							
MEAN	1430	---	1160	1270	1300							
MAX	1500	---	1230	1440	1480							
MIN	1320	---	1130	1150	1180							





## 06179000

- EAST FORK POPLAR RIVER NEAR SCOBEE, MT.

## WATER QUALITY DATA

DATE	TIME	TEMPER- ATURE (DEG C) (00010)	TEMPER- ATURE (DEG C) (00020)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	CLOUD COVER (PER- CENT) (00032)	WIND SPEED (MILES PER HOUR) (00035)	WEATHER (WMO CODE NUMBER) (00041)	STREAM- FLOW, INSTAN- TANEOUS (CFS) (00061)	TUR- BID- ITY (NTU) (00076)	COLOR (PLAT- INUM- COBALT UNITS) (00080)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	OXYGEN, DIS- SOLVED (MG/L) (00300)
JAN 1986												
14...	15:00	0.0	3.0	700	0	E0	0	1.5	2.5	10	1540	--
MAR												
25...	09:30	4.0	1.5	698	10	E20	1	33	10	40	1000	9.9
APR												
16...	09:00	2.0	1.0	700	100	E3.0	3	12	4.8	15	1280	9.3
MAY												
14...	15:00	13.0	8.5	693	65	E15	1	20	4.0	30	1280	9.2
JUN												
13...	08:00	21.0	20.0	700	0	E0	0	3.7	4.1	40	1260	6.0
JUL												
16...	09:00	20.0	21.0	700	0	E12	0	4.1	--	--	1300	6.5

[illegible]



06179000

- EAST FORK POPLAR RIVER NEAR SCOBEEY, MT.

## WATER QUALITY DATA

DATE	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM AD- SORP- TION RATIO PERCENT SODIUM AS K) (00932)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SiO2) (00955)	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)
------	---	---	---	--	--	--	--	---	--	---

JAN 1986

14...

MAR

25...

APR

16...

MAY

14...

JUN

18...

JUL

16...

DATE	ARSENIC TOTAL (UG/L AS AS) (01002)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE) (01010)	BERYL- LIUM, RECOV- ERABLE (UG/L AS BE) (01012)	BORON, DIS- SOLVED (UG/L AS B) (01020)	CADMIUM DIS- SOLVED (UG/L AS CD) (01025)	CADMIUM RECOV- ERABLE (UG/L AS CD) (01027)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR) (01030)	CHRO- MIUM, RECOV- ERABLE (UG/L AS CR) (01034)	COPPER, DIS- SOLVED (UG/L AS CU) (01040)	COPPER, RECOV- ERABLE (UG/L AS CU) (01042)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE) (01045)
------	--	---	---	---	---	---	--	--	---	---	--

JAN 1986

14...

MAR

25...

APR

16...

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16...



06179000

- EAST FORK POPLAR RIVER NEAR SCOBEE, MT.

WATER QUALITY DATA

IRON, SOLVED (UG/L AS FE) (01046)	LEAD, DIS- SOLVED (UG/L AS PB) (01049)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) (01051)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) (01055)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	NICKEL, DIS- SOLVED (UG/L AS NI) (01065)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI) (01067)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) (01092)	ALUM- INUM, DIS- SOLVED (UG/L AS AL) (01106)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)
---	---	--	--	---	---	--	---	--	--	--

JAN 1935

14...  
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18...  
JUL  
16...

SELE- NIUM, TOTAL (UG/L AS SE) (01147)	SOLIDS, SUM OF CONSTIT- UENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70302)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SED. SUSP. SIEVE DIAM. X FINER THAN .062 MM (70331)	PHOS- PHORUS, ORTHO, TOTAL (MG/L AS P) (70507)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (MG/L) (80154)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY) (80155)	SPE- CIFIC CON- DUCT- ANCE LAB (US/CM) (90095)	ALKA- LITY LAB (MG/L AS CACO3) (90410)	HARD- NESS NONCAR- BONATE (MG/L AS CACO3) (95902)
---	--	--	--	--	--	---	--	---	--	--

JAN 1986

14...  
MAR  
25...  
APR  
16...  
MAY  
14...  
JUN  
18...  
JUL  
16...





GROUND WATER LEVELS TO MONITOR

POTENTIAL DRAWDOWN DUE TO

COAL SEAM DEWATERING

Responsible Agency: Montana Bureau of Mines and Geology

No. on Map

Sampling

2 to 22

Determine water levels  
quarterly





GROUND WATER PIEZOMETERS TO MONITER POTENTIAL

DRAWDOWN DUE TO COAL SEAM DEWATERING



# Ground-water level measurements

Well no.	<u>Depth to water (feet)</u>	
	April 9, 1986	June 20, 1986
2	218.29	217.75
3	82.00	81.85
4	60.73	60.52
5	20.85	20.83
6	21.34	20.79
7	79.01	78.58
8	13.69	14.09
9	14.19	14.62
10	5.74	5.86
11	-1.02	-1.05
12	dry	dry
13	135.04	134.99
14	212.56	212.54
15	224.51	224.34
16	41.72	41.05
17	248.43	247.98
18	247.96	247.79
19	126.49	126.17
20	dry	dry
21	240.67	240.63
22	18.14	17.93

(-) Indicates water level above land surface







